

The
Children's
Hospital
Medical
Center
Boston

1977



Perspective:

Today, The Children's Hospital Medical Center is a complex, high-technology institution in a complex, high-technology world. But at its heart, there is a garden.

Letter from the Chairman

The year 1977 was one of major movement. There was both a change in leadership and an overhaul of the organizational structure.

Dr. Leonard W. Cronkhite, Jr., President since 1962, resigned March 11, 1977 to assume the presidency of the Medical College of Wisconsin. Newer members of our professional staff and trustee body are probably only partially aware of Dr. Cronkhite's contributions to Children's, which would require literally pages to adequately catalogue and describe. Perhaps his most visible achievement was the comprehensive program of new construction and major renovations which provided a physical rebirth to our hospital. However, he should equally be remembered for his concern for the medically underprivileged and his creative efforts to better serve this population. His final contribution was the conceptualization, structuring and implementation of the joint venture in nursing education with Curry College—a project that took literally years in time, patience and persuasion to bring into being.

With the resignation of Dr. Cronkhite, an ad hoc committee was appointed to search for a dynamic and skillful executive who would serve as President and provide the necessary leadership for the myriad activities of The Children's Hospital Medical Center. There has probably never been a more abbreviated quest, since individually and collectively, the committee believed that these qualities were at hand in the person of David S. Weiner. These feelings were reciprocated by the medical staff and the Dean of Harvard Medical School. Accordingly, after the shortest kind of "decent interval," David S. Weiner, who had served for four years as Executive Vice President and immediately before that as Director, was elected as Dr. Cronkhite's successor.

In the relatively short time since his appointment, Mr. Weiner has assembled an extremely strong administrative team, and there is steady progress and high morale throughout the organization.

For some time it had become increasingly evident that time, age, size and other factors had rendered cumbersome and obsolete the corporate structure of the Medical Center. Accord-

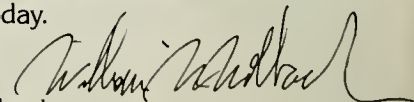
ingly, in late spring the trustees announced plans for a comprehensive study of the Medical Center's organizational structure in order to develop a new "apparatus" designed to meet the needs of the future. The study focused on three major areas: (1) role, responsibilities and structure of the Board of Trustees and Members of the Corporation; (2) organizational structure of administration; (3) relationships between administration, the Board of Trustees and the medical staff.

There were periodic progress reports to the Trustees' Executive Committee, and preliminary recommendations and bylaws were presented to the whole Board of Trustees on October 24, 1977. Finally, at the annual meeting in December, the trustees voted the major reorganization which they believe will best meet the policy-making and oversight needs of Children's Hospital Medical Center, and will allow for more efficient and effective performance of board responsibilities.

In particular, the plan approved:

- > The merger of the Board of Trustees and Members of the Corporation into a unified Board of Trustees.
- > The creation of a Board of Managers who will serve as the policy-making body responsible for the general supervision of the hospital.
- > A limited number of functional standing committees.
- > The plan clearly charged administration with the management of the day-to-day operations of the Medical Center and the medical staff with providing the clinical expertise required by the Medical Center's programs. The President, as Chief Executive Officer, is to serve as the main link between the Board of Managers, the medical staff and the operating organization.

Our "industry" and our institution will never be without problems. However, I can say confidently that we are aware of them, and that the basic strengths of the institution and its planning momentum for the future have never been greater than they are today.



William W. Wolbach
Chairman



Letter from the President



I would like to begin this Children's Hospital annual report, my first as President, by saying how pleased and honored I am to be serving in this leadership role. It is especially meaningful for me to have succeeded Dr. Leonard Cronkhite, who has meant so very much to Children's and to me personally.

Having been part of the hospital family for several years, it is with understandable pride that I express my belief that Children's represents the very best—a tradition of excellence in child health care, teaching and research. Recognition of this imposes an added responsibility on today's and tomorrow's Children's Hospital leaders to maintain and strengthen this tradition and, at the same time, to respond to increasing external challenges and demands.

The past three decades have witnessed dramatic changes in the way in which medicine is practiced and health care is delivered. There have been tremendous advances in medical technology, development of alternative methods for health care delivery, changes in mechanisms for financing care, and increased government regulation. The precise impact of these and future changes defies measurement; however, several trends are clear.

Recent advances in medical technology have made it possible to perform open heart surgery, transplant organs, implant artificial devices such as pacemakers, and perform surgery on a microscopic basis. New medicines and drugs have reduced the incidence of some diseases and shortened the treatment time of others. Increasing diagnostic capabilities in areas such as nuclear medicine, scanning and ultrasound have led to earlier detection and treatment of many problems. The computer and other electronic devices have made possible the automation of functions like patient monitoring, laboratory analysis, materials handling and information processing.

These innovations have several important implications for the medical care system and for Children's Hospital. They are changing the nature of diseases being treated, society's expectations of what is possible, and the cost of facili-

ties, equipment and specialized personnel. All in all, they are forcing the cost of quality medical care higher and higher.

Because of this, government concern has now shifted from a sense that there can never be enough to a fear that the present abundance of hospital resources is causing wasteful duplication of services. Emphasis is turning from acute care to preventive care and health maintenance. The major focus of thinking in the federal government and in many states, including Massachusetts, is no longer how to enhance hospital resources but how to limit them or at least consolidate their diverse components into a more economical and efficient system.

This puts an especially heavy burden on an intensely specialized medical center such as Children's, for we assume responsibility for the most difficult patient care problems and at the same time remain committed to education and research. The unique costs associated with a tertiary care center like ours will be under increasing scrutiny; it will become imperative to substantiate our costs to third party payors, rate setting commissions and other governmental agencies.

Any discussion of health care costs must also consider major adjustments in the length of hospital stays due to technological and treatment advances. At CHMC, for example, we have seen since late 1975 a significant and highly gratifying decrease of over 30 percent in the average length of stay of newborns in our Neonatal Intensive Care Unit. This is clear evidence that new and better ways of managing the care of these infants have made it possible for us to send them home to their parents sooner.

Equally dramatic are the effects of new surgical and casting techniques in the treatment of scoliosis (lateral curvature of the spine), which have sharply reduced the average length of stay for postoperative patients from 30 days to about two weeks. Medical progress of this kind is expensive, but when the result is a markedly improved outcome for patients, the costs are justifiable.

It is clear that we have reached a point where 3

our future perspectives in health care delivery and financing are circumscribed by our ability to come to grips with the problem of rising costs. I believe it is incumbent upon the health care industry itself to suggest rational permanent controls on rising costs—controls which are effective, yet flexible enough that hospitals such as Children's can continue to offer a broad spectrum of diagnostic and treatment services.

Further, we must acknowledge that with the advent of Certificate of Need legislation in Massachusetts, the pace of new hospital construction will be considerably less rapid than in previous decades. The fact that CHMC facilities are for the most part exceptionally good is a tribute to the foresight of Mr. Wolbach and Dr. Cronkhite and to the cooperative efforts of the trustees, medical staff and administration. We are currently planning a two-story multidisciplinary Intensive Care Unit for which we recently received Certificate of Need approval. We are also looking toward the relocation and construction of a new dental unit, a radiation therapy facility and, eventually, a replacement inpatient facility on the site of the present power plant.

Important staff changes at CHMC during the past year, in addition to Dr. Cronkhite's resignation as President, included the appointment of our Psychiatrist-in-Chief, Dr. Julius B. Richmond, as Assistant Secretary for Health and Surgeon-General of the United States. Joining us during 1977 were Dr. J. Anthony Hargreaves as Chief of Dentistry and Dr. Alan B. Retik as Chief of the Division of Urology in the Department of Surgery.

On the administration side, I have tried since becoming President to assemble at Children's a team with the high level of expertise to manage an extremely complex institution. I am pleased to note here that Robert R. Fanning, Jr., was appointed Executive Vice President in September, 1977, and has assumed responsibility for operational aspects of the hospital. Henry F. Colt, Jr., and James J. Fleming also came to Children's during 1977, Mr. Colt as Vice President for Development and Mr. Fleming as Director of Personnel. In addition, Joseph A. Gagnon was recently appointed Director of Fiscal Services. I

am happy to welcome these physicians and administrators to Children's and excited by the prospect of working with them and all our staff in shaping present and future directions of the hospital.

For the coming year, there is one goal out of the many to which the hospital is committed that should have long-term implications—that is, our increasing focus on the needs of the adolescent and young adult population using our services. Our adolescents have distinct health and psychological needs which differentiate their care requirements from those of early childhood and adulthood.

Partly because of the rising survival rate for children with serious medical problems and partly because of new treatment techniques, the percentage of CHMC inpatients between the ages of 12 and 21 rose from 14 percent in 1968 to 35 percent in 1976. We have also cultivated a major adolescent and young adult population through our sports medicine and gynecology clinics. It is important for us to modify some of our physical environment in keeping with adolescent and young adult needs and preferences, and to offer and communicate to the public the kinds of programs that make apparent the hospital's commitment to adolescents and young adults.

I look to the future of Children's Hospital with optimism. I am confident of our ability to meet the challenges ahead and to strengthen and enhance the stature of this institution as a unique, comprehensive medical center for children and young adults. It is most gratifying to be surrounded by so many talented and dedicated people who serve Children's Hospital and who embody the CHMC tradition. I feel privileged to be part of this great tradition.



David S. Weiner
President





The number of adolescents treated at Children's has increased dramatically: from 14 percent of all inpatients in 1968 to 35 percent in 1976. The hospital has responded by planning and developing programs geared to the special needs of teenagers and young adults.

Letter from the Physician-in-Chief

I would like to share with you the sense of excitement and challenge that is evident the moment you walk through the doors of The Children's Hospital Medical Center. The hospital is a large, bustling, high-technology institution—but to the surprise and delight of many visitors, it is built around one of Boston's most beautiful gardens.

Children are everywhere, and everywhere you see an environment dedicated to their emotional as well as medical needs. Whenever possible, the children are out of bed—in the garden, the playrooms, the spacious lobby or the cafeteria. Some of the children push their own intravenous poles ahead of them; others are in wheelchairs or even stretchers; some are wearing football helmets to protect their recently operated heads from injury.

The children are rarely alone. Striking is the number of adults per patient, from nurses and students of all sorts to parents, friends and pink-jacketed volunteers.

Approximately 300 babies, children and young adults are inpatients at any one time, and 400-500 are seen daily as outpatients in the clinics and emergency room. Their needs are met by the more than 3,000 employees of this complex world within a world.

Medical Care The medical staff includes generalists and specialists, some of whom are full-time, some part-time, and others in practice in the community. With the recent explosion in scientific knowledge has come a tendency to ever greater specialization, as highly complex laboratory and clinical skills require more and more concentrated experience.

For example, bone marrow transplantation, by which we have recently scored lifesaving triumphs over some rare disorders, requires a complex network of many individuals. This teamwork—found in institutions such as ours—illustrates the interdependence of specialists who together produce a quality of medical care never before attainable.

But today's pediatrics is concerned not only with major surgical operations or intensive care. Teamwork of another variety takes place in the child development programs in the Fegan Build-

ing and in the Adolescents' Unit. Here, representatives of many disciplines work together to help children with a wide variety of dysfunctions which may impose severe handicaps but not require hospitalization. We are increasingly involved with preventive pediatrics, such as early identification of potentially threatening conditions and mobilization of medical and community resources, to help foster strengths and overcome, correct or bypass weaknesses.

Our settings for patient care, while concentrated at the hospital itself, are not exclusively here. In recent years we have assumed increasing responsibility for pediatric care in neighborhood health centers and at the Wrentham State School. We have close ties to a number of school health programs, and are participants in the Brookline Early Education Project with individuals in the Harvard School of Education. The new Lahey Clinic primary care center in Burlington is affiliated with this institution. Members of our staff are consultants to a large number of other hospitals, medical schools and to state and national health agencies.

Regionalization Children's Hospital serves as a regional center for coordination of many child health activities. The New England Regional Infant Cardiac Program guided by Dr. Alexander S. Nadas, Chief of Cardiology, is concerned with diagnosis of malformations of the heart and referral to appropriate centers for repair. Similarly, the Massachusetts Poison Control System has its headquarters at CHMC. Our renal dialysis program serves regional needs, and we have pioneered in kidney transplantation in children.

This institution has long been associated with advances in the understanding and care of children with cystic fibrosis. Dr. Harry Shwachman was honored last year by the International Cystic Fibrosis Foundation for these efforts. Now retired as director of the program, he continues to teach and see patients. Dr. Harvey R. Colten, a student of allergy, immunology and infectious diseases, is his successor as program director and has launched major studies on mechanisms of resistance to pulmonary infections.

Other areas of special emphasis which bring





Twenty-five years ago, critically ill newborns had little hope of survival. Dramatic medical and technological advances since then have cut the mortality rate for these babies in half. Children's in Boston provides the finest intensive care for infants that is available today.

patients from near and far include correction of curvature of the spine. Studies on immune deficiency states, a long-standing interest of Dr. Charles A. Janeway, are continuing under Dr. Fred S. Rosen and colleagues. New insights into cellular and humoral aspects of immunity have resulted in identification of several disease processes over recent years.

Area Cooperation Collaboration with institutions in our immediate geographical area is another important effort at CHMC. In fact, our hospital is at the hub of a group of illustrious medical institutions—Harvard Medical School, Harvard School of Public Health, Countway Medical Library, Boston Hospital for Women, Beth Israel Hospital, New England Deaconess Hospital, Joslin Clinic and our closest neighbors, the Peter Bent Brigham Hospital, the Sidney Farber Cancer Institute and the Dana Cancer Center. Good neighbors bring wide-ranging consultative services, permit joint programs that can be more effective than competing ones, and allow trainees of all levels to bring us new ideas and questions, just as we provide education on the special needs of children.

Our ties with area neighbors, like those with pediatricians at the Massachusetts General Hospital, increase as we respond to possibilities for sharing resources, containing costs and improving our capacity to provide optimal patient care while enlarging educational opportunities.

For example, our Joint Program in Neonatology, under the direction of Dr. H. William Taeusch, Jr., and his colleagues, serves the needs of over 8,000 infants born at the Boston Hospital for Women and Beth Israel Hospital, as well as nearly 350 per year referred to Children's Hospital from more distant sites. Close collaboration with other neonatal units in Boston and environs assures all infants who require intensive care of its continuous availability.

Radiation therapy and computerized tomography shared with area institutions illustrate a desire to reduce duplication of expensive resources. At the same time, we think it imperative that our small patients (and sometimes larger ones as well) have ready access to services

designed to meet their particular needs.

In an age of specialization, joint training programs and conferences with internists in infectious diseases, cardiology, endocrinology, gastroenterology, dermatology, the surgical specialties and dentistry permit investigators to think beyond the age usually identified with pediatrics and encourage trainees to study the natural course of illness, including the childhood precursors of adult problems.

Research The Clinical Research Center is the major setting for clinical investigation at Children's Hospital. Supported by the National Institutes of Health, the center is now in its 15th consecutive year of operation. New ideas and approaches to clinical problems are applied here, under the scrutiny of senior investigators and monitored by the hospital Committee on Clinical Investigation. All clinical research at Children's is carefully reviewed and conducted only with informed consent of patients when possible, or parents and patient advocates in the case of infants.

The major focus of biomedical research is in the John Enders Laboratories for Pediatric Research and the laboratories of the Sidney Farber Cancer Institute. Our major attack on childhood malignancies is under the leadership of Dr. David G. Nathan, who serves as Pediatrician-in-Chief for the Sidney Farber Cancer Institute and Hematologist-in-Chief for Children's Hospital. Progress in treatment of cancer in children is continuous, with each year bringing an ever increasing number of long-term survivors. The many recent advances in hematology include prenatal diagnosis of sickle cell disease and thalassemia, removal of excessive body stores of iron by continuous infusion of iron chelating agents, and insights into the basic defect in hypoplastic anemias.

The group in genetics under Dr. Park S. Gerald has continued basic studies on gene mapping, as they search for understanding of normal development and congenital malformations. This past year, Dr. Samuel A. Latt has opened a new chromosome laboratory at the Boston Hospital for Women to permit application of his tech-





The Enders Laboratories for Pediatric Research at Children's make up the largest pediatric research facility in the world. Here, basic scientists and physician-investigators search for solutions to the problems of pediatric disease and for answers to the puzzle of human development.

niques for the identification of chromosomes to aid prenatal diagnosis and pursue studies on the causes of birth defects.

A major new program in experimental pathology has been initiated by Dr. Lynne Reid, S. Burt Wolbach Professor of Pathology. Dr. Reid, who came from the Brompton Hospital in London, brought her team of investigators from England to pursue studies in pulmonary pathology. She and her group are examining alterations in the lung found in association with congenital heart disease, cystic fibrosis, hyaline membrane disease and the sudden infant death syndrome.

Aspects of brain development, causes of injury in premature infants, and impact of infections on the nervous system are topics of study by neurologists, neuropathologists and students of infectious diseases, whose goal is the prevention of birth defects, mental retardation and central nervous system injury.

Education How are all these new ideas communicated? Surely a complete view of the professional activities of Children's Hospital requires a moment to focus on the educational activities undertaken by the staff.

The several hundred research publications each year, and the four or five textbooks written annually by staff reach a worldwide audience. Continuing medical education, now mandated for license renewal, has greatly increased interest in weekly teaching conferences. We sponsor about ten postgraduate courses each year, which attract more than one thousand registrants from this country and abroad.

As a Harvard teaching hospital, we have residency training programs in all pediatric and pediatric surgical specialties. Interns and residents from other hospitals, medical and dental schools rotate through our clinics for further training. About sixty third- and fourth-year Harvard Medical School students come in groups of 8-12 to work on our clinical teams and learn pediatrics. Others come on elective rotations in many specialty areas. Student nurses from our affiliated Curry College Program and other students from neighboring Simmons and Northeastern colleges rotate through the special

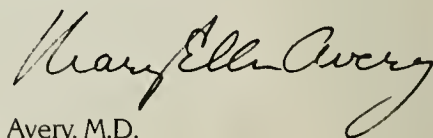
clinics of Children's Hospital.

Educational enterprises are so closely interwoven with the other missions of the hospital that future planning will surely require definition and identification of more suitable classrooms and support facilities for this important activity. We are a larger "college" than some colleges, even as we try to fulfill our central mission of providing optimal care for children. The presence of questioning students is a significant factor in insuring that care, just as educational activities insure the presence of skilled caretakers for the future.

I have only touched upon the basic goals and programs of the enterprise known as The Children's Hospital Medical Center. A full description would have to mention many other services: the burgeoning dental clinic under its new Chief, Dr. J. Anthony Hargreaves; ambulatory surgery where ever increasing numbers of children are treated without the added stress of hospitalization; the diagnostic test center; and the busy emergency room (a euphemism for a 24-hour drop-in clinic). This last setting not only serves the needs of our neighbors, but is also a resource for practicing physicians.

Another important service, the Comprehensive Child Health Program, has now enrolled over 7,000 children. Previously the recipients of episodic care, these children now receive continuing primary care. This clinic within the hospital is the focus for studies on aspects of health care delivery, such as the development of telephone protocols for use by paramedical personnel.

This brief description of Children's Hospital Medical Center has been a "tour" of sorts—one in words. We invite you to come and tour the hospital in person, so that you can share our enthusiasm for the great heritage, as well as potential, of this institution.



Mary Ellen Avery, M.D.
Physician-in-Chief



Focus:



The surgical advances made at Children's Hospital over the past decade continue a tradition of innovation that reaches back to the very beginnings of pediatric surgery.

Pediatric surgery is very different from adult surgery. In children, operations must be scheduled so they don't interfere with future growth and maturation. Pediatric surgeons must also consider the psychological and social effects of surgery on a developing child.



There's a small portable pump on Tommy's bedside table. At night, his mother connects it to a tiny rubber tube implanted in her son's stomach. While Tommy sleeps, the pump does what his body cannot do for itself: It supplies glucose to his blood stream at a controlled, steady rate. Without the glucose, Tommy would go into convulsions. Without the glucose, he would probably be retarded by now. Without the glucose, he would have little hope of surviving beyond his fifth birthday.

Carol was born with Crouzon's syndrome, a massive and cruel disfigurement of the face. Her cheeks were sunken, her eyes protruded, and her lower lip stuck out because of an overbite of the lower jaw. Then, when she was 14 years old, a team of surgeons cut the entire midface (from the lower forehead to the chin) from the base of the skull and moved it forward 1¼ inches. Both jaws and orbits around the eyes had to be rotated individually to obtain symmetry of the facial structures. The operation took 12 hours and was followed by several months of recovery. But it has changed Carol's whole appearance and her outlook on herself and her life.

The diagnosis was obvious the moment Joseph was born. His intestines were outside the abdominal cavity—a condition known as omphalocele. In an operation carried out the day he was born, surgeons covered the abdominal wall with two layers of plastic, one a Teflon mesh and the other a sheet of fine polyethylene. As space developed within Joseph's abdomen, the plastic layers were gradually removed and the intestines returned to the abdominal cavity. Within ten days, all the plastic was gone and the abdominal wall completely corrected with normal musculature and skin. Had Joseph been born before this technique was developed, he probably would have died.

Tommy's treatment and the method for repairing omphaloceles were developed at the Children's Hospital Medical Center. The operation that reconstructed Carol's face was performed for the first time in the United States at Children's Hospital. These are just three of the dozens of dis-

coveries and surgical advances made at Children's over the past decade, continuing a tradition of innovation that reaches back to the very beginnings of pediatric surgery.

Soon after Children's Hospital opened its doors in 1869, it began to build a reputation for excellence in orthopaedic surgery: By the end of the century, it was an acknowledged leader. That expertise became nationally known during the polio epidemics that ravaged the Northeast in 1916 and then swept the country in 1949 and 1955.

During the past half century, surgeons at Children's Hospital have pioneered in the development of procedures to correct a wide variety of intestinal abnormalities, in the use of general anesthesia for removing foreign bodies from air and food passages, and in many other advances. The first successful cardiovascular operation for congenital heart disease was performed here in 1938 by Dr. Robert E. Gross.

"Many of the surgical advances of the past decade have been built upon the gains made by our predecessors," notes Dr. Judah Folkman, Surgeon-in-Chief. Surgical advances from Children's Hospital are widely recognized as among the most significant in the world.

In 1975, the American College of Surgeons and the American Surgical Association published a Summary Report of the Study on Surgical Services for the United States which identified the most important contributions of surgical research to health care from 1945 to 1970.

Contributions were listed by specialty, according to the first, second and third order of importance. The three most important developments in pediatric surgery during that time took place at CHMC.

First in order of importance came the combined drug and surgical therapy for Wilms' tumor, the result of collaborative work by CHMC's Dr. Sidney Farber and Dr. Robert E. Gross. Second was the treatment for Hirschsprung's disease developed by Dr. Orvar Swenson while at Children's. Two procedures shared the spotlight for third order of importance: One of them was the technique for repair of omphaloceles developed



by Dr. Samuel R. Schuster, Associate Chief of Surgery at CHMC.

In 1966, surgeons at Children's Hospital performed the first one-stage midface advancement operation for Crouzon's syndrome in the United States. Since that time, over 250 other children with severe facial defects have been successfully operated on. These include most congenital problems, but also deformities secondary to the treatment of cancer and those following accidental injuries. The surgical team—led by Dr. Joseph E. Murray with his associates, Drs. John B. Mulliken and Leonard B. Kaban, of Oral Surgery—today treats a wide variety of problems in conjunction with the Neurosurgical and Ophthalmological services.

The kidney transplant program at CHMC was started in 1971 by Dr. Raphael H. Levey. Soon afterward, a program in the total care of children with end-stage renal disease was developed. Today it is one of the two largest pediatric transplantation and dialysis programs in the world, as well as the major referral center for children from the New England Region.

Dr. Levey and his associates have developed new technology which makes hemodialysis in extremely small children possible, by providing access to the patient's tiny arteries and veins. These techniques have been applied to the care of many children with tumors who require prolonged anti-cancer drug therapy.

The surgical laboratory prepares a potent immunosuppressive agent, which has markedly improved the acceptance of kidney transplants and also helped in the care of patients on the medical service who are scheduled to receive bone marrow transplantations.

Before 1973, infants born with critical heart defects usually faced two major operations. The first, performed within the first year of life on the closed heart, reduced the effects of the defect on the body. The second, an open-heart operation done when the child reached three to five years, totally corrected the problem.

Since 1973, a dramatic technique of cooling the body to a point of suspended animation has enabled surgeons at CHMC to completely correct

operable defects in a single operation within the first year of life. "This technique, combined with advances in diagnosis and postoperative care, made the risk of early one-step correction significantly less than that of two operations," says Chief of Cardiovascular Surgery, Dr. Aldo R. Castaneda, who introduced the new procedure here.

In addition, early total correction means that the child can develop normally, without the psychological and social problems that sometimes go along with serious physical disabilities. Since 1973, 300 babies have successfully undergone this one-step operation—the smallest weighed two pounds, the youngest was 38 hours old.

Dr. Folkman's special interest in the problems posed by glycogen storage disease goes back more than a decade.

His first contribution, in collaboration with Dr. John F. Crigler, was the development of a new technique that substantially reduced the risk of mortality, while maintaining the benefits of the previous procedure.

This led to a further improvement in which a tiny tube is permanently implanted into the stomach, so that glucose can be infused continuously at night by a mini-pump. The need for major surgery has been eliminated, and these children are now growing into normal, healthy youngsters.

A group of otolaryngologists (ear, nose and throat specialists) who pioneered the use of laser beams in the larynx have been refining and expanding that technique at CHMC for the past two years.

Traditionally, children who develop large growths inside the breathing passages often require tracheotomies (tubes surgically implanted in the trachea through the neck) in order to breathe. The growth itself is removed by forceps through the mouth or by surgically entering through the skin.

With a laser, the surgeon directs an invisible beam of light down a tube, using an intricate system of mirrors and a powerful operating microscope. The beam can act as a scalpel, cutting





In pediatric surgery, correcting a defect in a month-old infant demands the utmost in surgical precision. It also requires the skills of the finest radiologists and anesthesiologists, the support of the best nursing and residency staffs, and the expertise of many other specialists.

away growths, or it can destroy the harmful tissue by vaporizing it. There is no bleeding (because the beam coagulates the vessels before they have a chance to bleed), little swelling and little or no scar tissue formation.

Children come to CHMC from all over the world for treatment of all types of spinal problems. Many of these children have severe deformities which have been unsuccessfully dealt with elsewhere. Surgical management, involving operations on both the front and back of the spine, may be needed. Many problems require several staged operations to achieve success.

CHMC is one of the few centers in the world that can provide the combination of expertise needed to treat the entire range of spinal curves, from the simplest to the most severe.

The hospital team, led by Dr. John E. Hall, Chief of Clinical Services in Orthopaedic Surgery, offers a range of methods for treating spinal curvatures. The Boston Brace System, developed here four years ago, combined with physical therapy, controls the problem in most children, if it is detected early enough. Severe curvatures, however, require surgery in which the spine is straightened with mechanical devices and the affected vertebrae are fused together with bone grafts. Each year the Children's team sees between 400 and 500 patients for brace treatment and performs about 350 spinal operations.

Some of the most exacting and delicate surgical techniques are required to remove cataracts from children's eyes. Ophthalmologists, under department Chief Dr. Richard M. Robb, use a ceiling-mounted microscope to magnify the operating field up to 20 times. A tiny incision is made at the edge of the cornea, and a blunt needle introduced through it into the lens capsule. A special syringe attached to the needle then draws out the cataractous material. This intricate technique is a dramatic improvement over the method used just ten years ago which required a much larger incision, sometimes repeated surgical openings and a longer healing period.

This is only a partial list of the important surgical achievements made at Children's in the past decade. They represent attempts to under-

stand and treat some of the most complex and serious childhood illnesses.

The success of any surgery – from the most routine procedure to a historic first-time operation – depends upon a network of supporting services. "Some of our procedures simply couldn't be done without an accurate diagnosis through radiology and clinical testing. When an operation is modified or designed specifically to meet special needs of a particular patient, complete and accurate diagnostic information is vital to success," explains Dr. Folkman. The radiology services at Children's are "superb," he says, not only in the sophistication of their techniques, but also in the accuracy of interpretation.

In the operating room itself, surgeons rely on anesthesiologists to stabilize patients during the trauma of surgery. "Administering the anesthesia and then monitoring the patient's vital signs are much more complicated in children than in adults," points out Dr. Folkman.

Excellent care after the operation – particularly during the first crucial hours and days – is as important as excellent surgery. Physical and respiratory therapists, nutritionists and many other specialists provide that care. But the pivotal figure is the nurse, and nurses at Children's are, very simply, the best, according to Dr. Folkman.

The training of new pediatric surgeons and continuing education for those already in practice are important aspects of the surgical services at CHMC. The residency training program is among the most rigorous and intensive in the country. CHMC graduates go on to top positions in hospitals around the world. In the United States and Canada, the chiefs of surgery at 12 of the 16 children's hospitals certified to train pediatric surgeons were themselves trained at CHMC.

"Professional education – of physicians, nurses and other specialists – is an integral part of the day-to-day life of this institution," says Dr. Folkman. It is also vital to the hospital's long-range mission, for it insures that the medical achievements made at CHMC and the expertise developed here will be available to children throughout the country and the world – and to children of the future.



Report:



Statistical and financial data for the year 1977: statistics on patient care, hospital personnel, Report of the Treasurer, income statement, and statement of fund balance.

The Children's Hospital Medical Center is the largest and second oldest pediatric hospital in the United States. Founded in 1869 as a 20-bed

hospital for children, it is now a comprehensive center for child health care offering a full range of medical and surgical services.

Patient

Number of licensed beds	343
Inpatients served	13,056
Patient days	98,660
Average stay	6.9 days
Clinic visits	114,357
Number of clinics	92
Emergency room visits	60,071
Surgical Procedures	
Inpatient	6,754
Outpatient	2,733
Total	9,487
Radiology	
Patient visits	65,698
Procedures performed	75,360
Laboratory tests	495,985

Personnel

Medical staff	664
Dental staff	32
Associated scientific staff	175
Courtesy staff	173
House staff and Fellows	348
Nursing staff	591
Other full-time employees	1,809
Part-time employees	578
Volunteers	663

Report of the Treasurer

The following financial statements, audited by Peat, Marwick, Mitchell & Co., constitute the Report of the Treasurer for The Children's Hospital Medical Center's fiscal year ended September 30, 1977.

The statements reflect the achievement of the important interim objective of a "break-even" from operations after depreciation, utilizing investment income. I'm advised that this was accomplished without detriment to patient care activities at the hospital. Moreover, due to the fine efforts of the Investment Committee, the Children's Hospital portfolio has outperformed the standard indices of investment performance in the fiscal year just ended while increasing income per unit. Even without investment income, 1977 operating results were approximately \$350,000 better than those of 1976, after fiscal 1976 had shown an improvement of more than \$1,050,000 relative to 1975. Credit is due to management and the entire community of The Children's Hospital Medical Center for these results. Among its other pluses, this financial milestone is an encouraging step toward assuring the future fiscal strength of the Medical Center.

However, this is no time for complacency. For example, as is true for virtually all hospitals, historical depreciation allowances are inadequate because of inflation, technological advances, and increasingly stringent regulatory and licensure requirements. Progress was made in 1977, but much work still lies ahead.

With the continuation of the kind of effort which everybody involved exerted in the year just ended, and barring external factors beyond the adjustment ability of the institution, the current fiscal year can now show further financial improvement.

This will be my last report as Treasurer and I would like to take this opportunity to thank the medical staff, management, and my fellow officers and trustees for their cooperation and help over the years. I have considered it an honor and a privilege to have served as Treasurer and look forward to continuing as Chairman of the Audit Committee.



Ephraim Radner
Treasurer

Statement of
Revenues and
Expenses

Year Ended September 30, 1977

Patient service revenue	\$56,402,979
Adjustments granted (free care, contractual, etc.)	(7,696,799)
Net patient service revenue	48,706,180
Other revenue	7,965,797
Total operating revenue	56,671,977
Patient care expenses	57,720,042
Loss from patient care operations	(1,048,065)
Loss from research, training, etc.	(179,460)
Loss attributable to residential complex	(207,487)
Loss from operations	(1,435,012)
Non-operating revenue	3,603,350
Balance available for future programs	\$ 2,168,338

Note: The above figures are taken from the audited financial statements for year ending September 30, 1977.

Auditors
Peat, Marwick, Mitchell & Co.
Certified Public Accountants

**Condensed
Balance Sheet
September 30,
1977 and 1976**

Assets	1977	1976
Unrestricted funds:		
Current:		
Cash	\$ 351,071	\$ 574,368
Accounts receivable, net	13,256,890	13,681,234
Inventories	475,758	451,934
Prepaid expenses	142,258	391,614
Total	14,225,977	15,099,150
Cash surrender value — deferred compensation	1,032,344	943,409
Investments, at cost	10,551,727	10,750,458
Property, plant and equipment, at cost less accumulated depreciation	48,980,302	47,912,908
Total	74,790,350	74,705,925
Restricted funds:		
Accounts receivable	2,340,155	2,942,232
Investments, at cost	27,043,862	25,566,992
Total	\$104,174,367	\$103,215,149
Liabilities and Fund Balances		
Unrestricted funds:		
Current:		
Current portion of long-term debt	\$ 376,694	\$ 349,203
Accounts payable and accrued expenses	5,613,463	9,511,834
Due to third party payors	2,673,975	1,609,681
Deferred revenue	40,876	147,995
Total	8,705,008	11,618,713
Long-term debt, excluding current portion	11,871,587	12,251,522
Deferred compensation	1,032,344	943,409
Accrued employees' retirement plan expense	1,929,432	2,002,927
Fund balance	51,251,979	47,889,354
Total	74,790,350	74,705,925
Restricted funds:		
Specific purpose funds	8,672,646	8,519,278
Endowment funds	20,527,003	19,896,046
Funds held for others	184,368	93,900
Total	\$104,174,367	\$103,215,149

In a modern medical center like Children's, many people work behind the scenes: administrative personnel, dietary workers, pharmacists, skilled tradesmen and many others. While less visible than doctors and nurses, these people are also dedicated to patient care.



People:



There are many talented and dedicated individuals who serve and embody the CHMC tradition, shaping the present and future directions of Children's Hospital Medical Center.

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Aldo R. Castaneda, MD
Senior Associates in Cardiovascular Surgery
William F. Bernhard, MD
Nina S. Braunwald, MD

Associates in Cardiovascular Surgery

Lawrence H. Cohn, MD
John J. Collins, MD
George W.B. Starkey, MD

Assistant in Cardiovascular Surgery
William I. Norwood, MD

Department of Dentistry

Chief
J. Anthony Hargreaves, MChD
Senior Associates in Pedodontics

M. Michael Cohen, DMD
Norman T. Budde, DMD
Howard L. Needleman, DMD
Stephen Shusterman, DMD

Senior Associates in Orthodontics
Melvin I. Cohen, DMD
Peter K. J. Yen, DMD

Senior Associate in Oral Surgery
Walter C. Guralnick, DMD

Associates in Pedodontics
John D. Doykos III, DMD
Carl G. Cohen, DMD
Terrence D. Hoover, DMD

Associate in Orthodontics
Stephen S. Hilzenrath, DMD

Associate in Oral Surgery
Leonard B. Kaban, DMD, MD

Assistants in Pedodontics
F. Edward Gallagher, DMD
Norman Goldberg, DMD
Jack Hertzberg, DMD
George Kates, DMD

Assistant in Oral Surgery
Earle H. Rosenberg, DMD

Assistant in Periodontics
Noah Zager, DMD

Assistant in Prosthetics
Robert Burr, DMD

Clinical Assistants in Pedodontics

Michael Coppe, DMD
Burton Edelstein, DMD
Sam Eisenstein, DMD
Bruce Fieldman, DMD
Robert A. Frank, DMD
Steven D. Lasser, DMD
Eli Schneider, DMD
Lawrence M. Rubin, DMD
Robert F. Watton, DMD

Department of Neurology

Chief

Charles F. Barlow, MD

Senior Associate in Neurology

Cesare T. Lombroso, MD

Associates in Neurology

Michael J. Bresnan, MD

Martha B. Denckla, MD

Frank H. Duffy, MD

Giuseppe Erba, MD

Alan Leviton, MD

Hubert S. Mickel, MD

S. Robert Snodgrass, MD

Liza Yessayan, MD

Assistants in Neurology

Norberto Alvarez, MD

Thomas E. Browne, MD

Paul N. Chervin, MD

Marc Dichter, MD

Michael S. Duchowny, MD

H. Harris Funkenstein, MD

James G.T. Nealis, MD

Dennis Selkoe, MD

Stephen M. Sergay, MD

Learning Disabilities Unit

Director

Martha Bridge Denckla, MD

Coordinator of Educational Screening Program

Christopher Connolly, PhD

Reading and Learning

Disabilities Specialist

Margaret Isabel Guild, EdD

Division of Neurophysiology and Seizure Unit

Chief

Cesare T. Lombroso, MD

Associates

Frank H. Duffy, MD

Giuseppe Erba, MD

Assistants

Albert A. Ackil, MD

James G.T. Nealis, MD

Director of Special Procedures

Yoichi Matsumiya, PhD

Research Associates, Seizure Unit

Barbara A. Balaschak, MA

Valerie C. Erba, PhD

Harold Goodglass, PhD

Mildred J. McIntyre, PhD

David I. Mostofsky, PhD

Division of Neuroscience

(Department of Neuroscience
Mental Retardation Research
Program)

Chief

Richard L. Sidman, MD

Senior Research Associates

Antonio V. Lorenzo, PhD

Pasko Rakic, MD, ScD

Michael Shelanski, MD, PhD

S. Robert Snodgrass, MD

Research Associates

James Burchfiel, PhD

Frank Duffy, MD

Louise L. Edds, PhD

Thomas O. Fox, PhD

Lloyd A. Greene, PhD

Christo Goridis, MD

Tessa Hedley-Whyte, MD

(to 8/31/77)

Elias Kouvelas, MD

Anne Messer, PhD

Richard J. Mullen, PhD

Melitta Schachner, PhD

Research Assistants

Michael Biber, MD

Janet C. Blanks, PhD

Scott Brand, PhD

Shu-Hui Chen-Yen, PhD

Stanley Froehner, PhD

Cecilia T. Giambalvo, PhD

Mary E. Hatten, PhD

Karl Herrup, PhD

Lawrence W. Kneisley, MD

Virginia Lee, PhD

Ronald Liem, PhD

Jeffrey C. McGuire, PhD

Yoshihiro Ogawa, MD

Carla J. Shatz, PhD

Jerry Silver, PhD

Ana Sotrel, MD

Suzanne Tarlov, PhD

Ekkhart Trenkner, PhD

Christine C. Vito, PhD

Marian Willinger, PhD

Visiting Research Associates

Heinz Kunzle, MD

Francois Rieger, PhD

Research Associates (Neuroanatomy)

Gary Van Hoesen, PhD
(Neuroanatomy and
Psychology)

Deepak H. Pandya, MD
(Neuroanatomy)

Biochemist

Paul M. Gallop, PhD

Research Associates

Laurence Bonar, AB

Carlo DeLuca, PhD

David Eyre, PhD

Alan Grodzinsky, ScD

(to 8/31/77)

Peter Hauschka, PhD

Marijke Holtrop, MD, PhD

William J. Landis, PhD

Harold M. Lipshitz, PhD

Mercedes Paz, PhD

Barry Reit, PhD

Aziza H. Soliman-Fam, MD

B. Marina Torrelío, PhD

Clyde Zalut, PhD

Research Assistants

Carlotta Evans, DDS

Edward Henson, BS

David A. Keith, BDS

Jane Lian, PhD

Joseph Mansour, PhD

Diane Brickley Parsons, PhD

William K. Sabine, MS

Masako Sakamoto, DDS, PhD

Seizaburo Sakamoto, DDS, PhD

Elsa Strawich, PhD

Department of Neurosurgery

Chief

W. Keasley Welch, MD

Senior Associate in Neurosurgery

John Shillito, Jr., MD

Associates in Neurosurgery

Edwin G. Fischer, MD

William G. Heisey, MD

Francis X. Rockett, MD

Ken R. Winston, MD

Assistant in Neurosurgery

John W. Walsh, MD

(to 8/1/77)

Senior Research Associate

Antonio Lorenzo, PhD

Department of Ophthalmology

Chief

Richard M. Robb, MD

Senior Associates in Ophthalmology

Sumner D. Liebman, MD

Robert A. Petersen, MD

Associates in Ophthalmology

William P. Boger, MD

Robert E. Curran, MD

Anne B. Fulton, MD

Assistants in Ophthalmology

Ann M. Bajart, MD

Robert A. Gorn, MD

Research Assistant in Ophthalmology

Jerry Silver, PhD

Department of Orthopaedic Surgery

Chief

Melvin J. Glimcher, MD

Clinical Chief

John E. Hall, MD

Senior Associates in Ortho- paedic Surgery

Paul W. Hugenberger, MD

Edward Nalebuff, MD

Edward J. Riseborough, MD

Richard Smith, MD

Arthur W. Trott, MD

Associates in Orthopaedic Surgery

Lyle J. Micheli, MD

Eric L. Radin, MD

Robert K. Rosenthal, MD

Sandra J. Thomson, MD

Hugh G. Watts, MD

Junior Associates in Ortho- paedic Surgery

Richard Scott, MD

Barry Simmons, MD

Assistants in Orthopaedic Surgery

John Michael Allen, MB, BS

John E. Kenzora, MD

Frederic Shapiro, MD

Sheldon R. Simon, MD

Junior Assistants in Ortho- paedic Surgery

Frederick Jones, MD

(to 7/31/77)

Scott Van Linder, MD

(to 12/31/77)

Visiting Assistants in Ortho- paedic Surgery

Frank D. Bates, MD
Benjamin E. Bierbaum, MD
Thomas L. DeLorme, MD
Michael A. Drew, MD
Hamish Gillies, MD
J. Drennan Lowell, MD
James G. Manson, MD
Robert Runyon, MD
Alan Schiller, MD
William Shea, MD
William M. Southmayd, MD
Marvin Weinfeld, MD

Department of Otolaryngology

Chief
Stuart Strong, MD
Associate Chief
Gerald B. Healy, MD
*Senior Associates in
Otolaryngology*
Burton F. Jaffe, MD
Marshall Strome, MD
John Trakas, MD
Charles W. Vaughan, MD
Associates in Otolaryngology
Allan G. Edwards, Jr., MD
Edward Glinski, MD
Clarence E. Kylander, MD
Trevor McGill, MD
Assistants In Otolaryngology
Marvin Fried, MD
Edward E. Jacobs, MD
Ely Kirschner, MD
William G. Lavelle, MD
Stanley Shapshay, MD

Hearing and Speech Division

Director
Martin Schultz, PhD
Senior Audiologist
Martha B. Lyle, PhD
Speech Pathologist
Anthony S. Bashir, PhD
Research Associates
Louis D. Braid, PhD
Nathaniel I. Durlach, BA
James P. Fraser, PhD
Speech Consultant
Paula Menyuk, PhD

Department of Pathology

Chief
Lynne Reid, MD
Associate Chief
Gordon F. Vawter, MD
Pathologist
Eveline E. Schneeberger, MD
Assistant Pathologist
Zebulon B. Vance, MD
Cardiac Pathologist
Richard Van Praagh, MD
Neuropathologists
Floyd Gilles, MD
Tessa Hedley-Whyte, MD
(to 8/31/77)
Ana Sotrel, MD

Assistant Neuropathologists
R. Damon Averill, Jr., DVM
Michael L. Shelanski, MD, PhD
*Research Associates in
Pathology*
Krishna Bhaskar, PhD
Stephen J. Coles, PhD
George E. Foley, ScD
Betty Jean Hargis, PhD
Mervyn Israel, PhD
Rosemary Jones, MPhil
Awtar Krishan-Ganju, PhD
Herbert Lazarus, PhD
Marie-Teresa Lopez-Vidriero, MD
Saul Malkiel, MD, PhD
Barbara Meyrick, PhD
Edward J. Modest, PhD
Antonio M. Rendas, MD
Andre Rosowsky, PhD
Sisir Sengupta, PhD
Henry Slayter, PhD
Adrian Williams, MB, BS
George Yerganian, PhD
*Research Assistant in
Pathology*
T.S. Anatha Samy, PhD
*Director of Clinical
Laboratories*
Joseph B. Alpers, MD, PhD

Department of Psychiatry

Acting Chief
Donald J. Scherl, MD
Senior Associates in Psychiatry
Children's Hospital
John R. Blitzer, MD

William M. Crowell, MD
Chester C. d'Autremont, MD
Leon Eisenberg, MD
Richard Galdston, MD
Donald J. Scherl, MD
Veronica B. Tisza, MD
Peter H. Wolff, MD
Norman E. Zinberg, MD
*Judge Baker Guidance
Center*
John C. Coolidge, MD
Joseph J. Mullen, MD
Donald H. Russell, MD
Stanley Walzer, MD
Associates in Psychiatry
Children's Hospital
Myron Belfer, MD
Herbert L. Needleman, MD
John E. O'Malley, MD
Eugene U. Piazza, MD
Alexandra K. Rolde, MD
Nancy Rollins (Youse), MD
Ludwik Szymanski, MD
*Judge Baker Guidance
Center*
Ernest W. Bergel, MD
Alice Fleming, MD
Robert H. McCarter, MD
Joan Zilbach, MD
Assistants in Psychiatry
Children's Hospital
Graham B. Blaine, MD
(Adolescent Medicine)
David Brown, MD
Harvey Budner, MD
Theodore Dreier, MD
J. Felton Earls, MD
Bruce Eissner, MD (DEC)
Gordon Harper, MD
Alexandra Murray Harrison, MD
Bruce Hauptman, MD
James Herzog, MD
Ralph G. Hirschowitz, MD
Richard Pohl, MD
Alan Prager, MD
Paul A. Reising, MD
Timothy Rivinus, MD
Quinn B. Rosefsky, MD
William B. Rothney, MD
Henry F. Smith, MD
David Waller, MD
Harold Wolman, MD
Robert Ziegler, MD
Robert Zimin, MD
Judge Baker Guidance

Center
George Hardman, MD
Donna M. Norris, MD
Herschel Rosenzweig, MD
Bayla Schorr, MD
John L. Weil, MD
Research Associates
Children's Hospital
Heidelise Als, PhD
Mary L. Carlson, PhD
(Psychology)
Marjorie F. Elias, EdD
(Psychology)
Richard A. Ferber, MD
Rose E. Frisch, PhD
Charles Gunnoe, EdD
Annette Silbert, PhD
(Psychology)
Edward C. Tronick, PhD
(Psychology)
Deborah P. Waber, PhD
(Psychology)
Marion I. Walter, EdD
Psychologists
Children's Hospital
Joseph P. Lord, PhD, Chief
Ruth S. Aisenberg, PhD
(Cardiology)
Harry Bakow, PhD
Mary Patricia Boyle, PhD
Haskel Cohen, PhD
Bruce Cushna, PhD (MRU)
Jessica H. Daniel, PhD
(Family Development Study)
Andrea Farkas, PhD (DEC)
Richard Geist, EdD
Harold Goodglass, PhD
(Seizure Unit)
Jane Mary Holmes, PhD
Irving Hurwitz, PhD
Betsy Kammerer, PhD
(Hearing and Speech) (DEC)
Gerald P. Koocher, PhD
Alice K. Locicero, PhD
Ann D. Salomon, PhD
Richard Schnell, PhD (MRU)
Theoharis Seghorn, PhD
(Seizure Unit)
Natalie D. Sollee, PhD
Albert Trieschman, PhD
Charles B. Woodbury, PhD
Karen Zelan, PhD
*Judge Baker Guidance
Center*
Bessie Sperry, PhD, Chief

Thelma Alper, PhD
Ellen Berger, PhD
Pauline Hahn, PhD
William Hudgins, PhD
Hugh Leichtman, PhD
Martin Norman, PhD
Phoebe Schnitzer, PhD
Robert Selman, PhD
William Shumate, PhD

Department of Radiation Therapy

Chief
Samuel Hellman, MD
*Associates in
Radiation Therapy*
James A. Belli, MD
William D. Bloomer, MD
Leslie E. Botnick, MD
J. Robert Cassidy, MD
John T. Chaffey, MD
Philip Cole, MD
(Epidemiology)
Robert L. Goodman, MD
(to 8/1/77)
Joel S. Greenberger, MD
Jay R. Harris, MD
Martin B. Levene, MD
Abraham Marck, MD
Ralph Weichselbaum, MD
*Director, Division of
Radiation Physics*
Bengt Erik Bjamgard, DSc

Department of Radiology

Chief
John A. Kirkpatrick, MD
Associate Chief
G.B. Clifton Harris, MD
Radiologists
William J.H. Caldicott, MB, BS
Kenneth E. Fellows, MD
N. Thome Griscom, MD
Robert L. Lebowitz, MD
Roy D. Strand, MD
Rita L. Teele, MD
Robert H. Wilkinson, MD
*Senior Consultant
in Radiology*
Edward B.D. Neuhauser, MD
Visiting Neuroradiologist
Richard A. Baker, MD

Division of Nuclear Medicine
*Chief of Nuclear
Medicine Service*
S. James Adelstein, MD
*Chief of Pediatric Nuclear
Medicine*
Salvador Treves, MD
Radiologists
David E. Drum, MD
B. Leonard Holman, MD
Associate Radiologists
William D. Kaplan, MD
Barbara J. McNeil, MD
*Radiopharmaceutical
Chemist*
Michael A. Davis, ScD
*Associate Radiopharma-
ceutical Chemist*
Alun G. Jones, PhD

Department of Surgery

Surgeon-in-Chief
Judah Folkman, MD
Associate Chief of Surgery
Samuel R. Schuster, MD
Senior Associates in Surgery
Arnold H. Colodny, MD
(and Urology)
John H. Fisher, MD
Donald W. MacCollum, MD
Joseph E. Murray, MD
(Plastic Surgery)
Associates in Surgery
Thomas W. Botsford, MD
Chilton Crane, MD
Angelo J. Eraklis, MD
George H. Gifford, MD
(Plastic Surgery)
Donald P. Goldstein, MD
(Gynecology)
Leonard B. Kaban, MD, DMD
(Oral Surgery)
John Leventhal, MD
(Gynecology)
Raphael H. Levey, MD
Alan B. Retik, MD
(Urology)
Kenneth J. Welch, MD
Assistants in Surgery
Stuart B. Bauer, MD
(Urology)
Thomas C. Cochran, Jr. MD
Paul R. Goldstein, MD
(Gynecology)

Robert M. Goldwyn, MD
(Plastic Surgery)
Julius Lister, MD
Kenneth A. Marshall, MD
John B. Mulliken, MD
(Plastic Surgery)
Charles D. Smith, III, MD
Francis G. Wolfort, MD
(Plastic Surgery)
Joseph Upton, MD
(Plastic Surgery)
*Research Associates
in Surgery*
Dianna Ausprunk, PhD
Christian K. Haudenschild, MD
Hyman Hartman, PhD
Michael Klagsbrun, PhD
Robert Langer, ScD
Clinical Assistants in Surgery
Robert D. Blute, MD
Charles Elboim, MD
Stephen F. Hansen, MD
Mark N. Goldstein, MD
Stephen J. Lipson, MD
Vladimir P. Shurlan, MD
William B. Waters, MD
Division of Gynecology
Chief
Donald P. Goldstein, MD
Division of Plastic Surgery
Chief
Joseph E. Murray, MD
Division of Urology
Chief
Alan B. Retik, MD

Consultants

Walter H. Abelman, MD
Cardiology
Herbert L. Abrams, MD
Radiology
Raymond D. Adams, MD
Neurology
Henry F. Allen, MD
Ophthalmology
Joel J. Alpert, MD
Medicine
Harold Amos, PhD
Microbiology
K. Frank Austen, MD
Medicine
Paul Axelrod, MD
Cardiology

C. Cabell Bailey, MD
Medicine
Henry Banks, MD
Orthopaedic Surgery
A. Clifford Barger, MD
Physiology
Virginia A. Beal, MPH
Nutrition
Baruj Benacerraf, MD
Pathology
Don C. Bienfang, MD
Ophthalmology
Elkan Blout, PhD
Chemistry
Eugene Braunwald, MD
Cardiology
Hathorn P. Brown, MD
Urology
Randolph K. Byers, MD
Neurology
Louis Caplan, MD
Neurology
Leo T. Chylack, Jr., MD
Ophthalmology
Jonathan Cohen, MD
*Orthopaedic Surgery
and Pathology*
Ramzi Cotran, MD
Pathology
Joseph G. Cutler, MD
Cardiology
John M. Craig, MD
Pathology
Edward Daniels, MD
Psychiatry
Bernard D. Davis, MD
Microbiology
David M. Dawson, MD
Neurology
Lewis Dexter, MD
Cardiology
Claes H. Dohlman, MD
Ophthalmology
John R. Eichorn, EdD
Special Education
Kendall Emerson, MD
Medicine
John Enders, PhD
Virus Research
Don W. Fawcett, MD
Anatomy



David S. Feingold, MD <i>Infectious Diseases</i>	Robert U. Johnson, BS <i>Radiation Safety</i>	William W. Montgomery, MD <i>Otolaryngology</i>	Arthur Solomon, MD <i>Nuclear Medicine</i>
Benjamin G. Ferris, MD <i>Environmental Health</i>	Michael L. Kaplan, DVM <i>Toxicology, Radiopharmacy</i>	Francis D. Moore, MD <i>Surgery</i>	George P. Sturgis, MD <i>Medicine</i>
Abraham Fineman, MD <i>Psychiatry</i>	Manfred Karnovsky, PhD <i>Biochemistry</i>	Van C. Mow, PhD <i>Biophysics</i>	Paul H. Sugarbaker, MD <i>Surgery</i>
Thomas B. Fitzpatrick, MD <i>Dermatology</i>	Morris J. Karnovsky, MBBCh <i>Pathology</i>	Martin L. Norton, MD <i>Anesthesia</i>	Nathan B. Talbot, MD <i>Medicine</i>
David G. Freiman, MD <i>Pathology</i>	Edward Kass, MD <i>Infectious Diseases</i>	Igor T. Paul, ScD <i>Bioengineering</i>	Marvin K. Tanzer, MD <i>Biochemistry</i>
Allan L. Friedlich, MD <i>Cardiology</i>	Eugene P. Kennedy, PhD <i>Biochemistry</i>	Peter L. Pellett, PhD <i>Nutrition</i>	Melvin L. Taymor, MD <i>Gynecology</i>
Nancy Gaspard, PhD <i>Nursing</i>	Sidney Kibrick, MD <i>Infectious Diseases</i>	Abijah Pierce, DMD <i>Orthodontics</i>	Charles Trey, MB, ChB <i>Medicine</i>
Sydney S. Gellis, MD <i>Medicine</i>	Edmund Klein, MD <i>Pathology</i>	W. Warren Point, MD <i>Medicine</i>	Clara F. Tubby, BS <i>Consumer Education</i>
Norman Geschwind, MD <i>Neurology</i>	Charles J. Klim, PhD <i>Speech Pathology and Audiology</i>	Theodore A. Potter, MD <i>Orthopaedic Surgery</i>	H. Richard Tyler, MD <i>Neurology</i>
Horace M. Gezon, MD <i>Medicine</i>	Stephen W. Kuffler, MD <i>Neurophysiology</i>	Cathie S. Ragovin, MD <i>Psychiatry (Adolescent Medicine)</i>	Carl W. Walter, MD <i>Surgery</i>
Luke Gillespie, MD <i>Obstetrics</i>	Deborah R.P. Langston, MD <i>Ophthalmology</i>	Raymond J. Reilly, MD <i>Gynecology</i>	David S. Walton, MD <i>Ophthalmology</i>
Irving H. Goldberg, MD <i>Pharmacology</i>	Merle Legg, MD <i>Pathology</i>	Robert G. Rosenberg, MD <i>Community Medicine</i>	Richard Warren, MD <i>Surgery</i>
Harvey Goldman, MD <i>Pathology</i>	Bernard Lown, MD <i>Cardiology</i>	Alain B. Rossier, MD <i>Neurosurgery & Orthopaedic Surgery</i>	Eric T. Weber, MD <i>Radiation Therapy</i>
W. Morton Grant, MD <i>Ophthalmology</i>	Henry J. Mankin, MD <i>Orthopaedic Surgery</i>	Kenneth Ryan, MD <i>Obstetrics and Gynecology</i>	John D. Webster, PhD <i>Special Education</i>
William T. Green, MD <i>Orthopaedic Surgery</i>	Leonard C. Marcus, MD <i>Infectious Diseases</i>	Ferdinand Salzman, MD <i>Radiation Therapy</i>	Louis Weinstein, MD <i>Infectious Diseases</i>
Alan J. Grodzinsky, ScD (9/1/77) <i>Bioengineering</i>	Harold May, MD <i>Family Medicine</i>	Arthur A. Sasahara, MD <i>Cardiology</i>	Thomas H. Weller, MD <i>Parasitic and Viral Diseases</i>
Constantine L. Hampers, MD <i>Medicine</i>	Jean Mayer, PhD, DSc <i>Nutrition</i>	Albert Schilling, MD <i>Medicine</i>	James L. Whittenberger, MD <i>Physiology</i>
Herbert I. Harris, MD <i>Psychiatry</i>	Robert T. McCluskey, MD <i>Pathology</i>	Harold Schuknecht, MD <i>Otolaryngology</i>	Merrill K. Wolf, MD <i>Neuroscience</i>
J. Hartwell Harrison, MD <i>Urology</i>	William V. McDermott, MD <i>Surgery</i>	Rose E. Segal, DSW <i>Social Work</i>	Richard Wolff, MD <i>Cardiology</i>
Anne Henderson, PhD <i>Occupational Therapy</i>	William Meissner, MD <i>Pathology</i>	Jacob Shapiro, PhD <i>Radiation Safety</i>	Dorothy Worth, MD <i>Maternal and Child Health</i>
Howard H. Hiatt, MD <i>Medicine</i>	Karl S. Menger, PhD <i>Applied Mathematics</i>	Gerald Shklar, DDS <i>Oral Pathology</i>	Clement Yahia, MD <i>Gynecology</i>
Helen K. Hickey, MEd <i>Physical Therapy</i>	John P. Merrill, MD <i>Medicine</i>	William Silen, MD <i>Surgery</i>	Alfred Yankauer, MD <i>Orthopaedic Surgery</i>
David E. Housman, PhD <i>Biology</i>	Martin C. Mihm, MD <i>Pathology</i>	Clement B. Sledge, MD <i>Orthopaedic Surgery</i>	Nicholas T. Zervas, MD <i>Neurosurgery</i>
Howard Jacobson, MD <i>Obstetrics</i>	David Miller, MD <i>Ophthalmology</i>	Ivor Smith, MD <i>Anesthesia</i>	Seymour Zimble, MD <i>Orthopaedic Surgery</i>
Andrew Jessiman, MD <i>Family Medicine</i>	William Moloney, MD <i>Medicine</i>	Thomas Smith, MD <i>Cardiology</i>	Paul M. Zoll, MD <i>Cardiology</i>
			James Zuckerman, MD <i>Obstetrics</i>

Emeriti

Donald L. Augustine, MD
Comparative Pathologist, Emeritus

Theodore L. Badger, MD
Consultant in Medicine, Emeritus

James M. Baty, MD
Consultant in Medicine, Emeritus

Tully Benaron, MD
Senior Associate in Psychiatry, Emeritus

Edward F. Bland, MD
Consultant in Medicine, Emeritus

Albert H. Brewster, MD
Orthopaedic Surgeon, Emeritus

John H. Brines, MD
Associate in Medicine, Emeritus

Allan M. Butler, MD
Consultant in Medicine, Emeritus

Randolph K. Byers, MD
Neurologist-in-Chief, Emeritus

Hans T. Clarke, PhD
Consultant in Chemistry, Emeritus

Stewart H. Clifford, MD
Senior Associate in Medicine, Emeritus

David G. Cogan, MD
Consultant in Ophthalmology, Emeritus

Joseph G. Cutler, MD
Associate in Cardiology, Emeritus

Gabor Czoniczer, MD
Research Associate in Rheumatic Fever Research, Emeritus

Gustave J. Dammin, MD
Consultant in Pathology, Emeritus

John A.V. Davies, MD
Senior Associate in Medicine, Emeritus

Louis K. Diamond, MD
Associate Physician-in-Chief, Senior Associate in Medicine and Chief of Hematology Division, Emeritus

Edwin B. Dunphy, MD
Consultant in Ophthalmology, Emeritus

Martha M. Eliot, MD
Consultant in Child Health, Emeritus (deceased February 14, 1978)

John Enders, PhD
Chief of Virus Research Unit, Emeritus

Charles F. Ferguson, MD
Senior Associate in Otolaryngology, Emeritus

Carlyle G. Flake, MD
Otolaryngologist-in-Chief, Emeritus

Henry M. Fox, MD
Consultant in Child Health, Emeritus

Albert A. Frank, MD
Senior Associate in Medicine, Emeritus

J. Roswell Gallagher, MD
Chief, Adolescents' Unit, Emeritus

Henry Gallup, MD
Senior Associate in Medicine, Emeritus

George E. Gardner, MD, PhD
Psychiatrist-in-Chief, Emeritus

William T. Green, MD
Orthopaedic Surgeon-in-Chief, Emeritus

Robert E. Gross, MD
Cardiovascular Surgeon-in-Chief, Emeritus

Trygve Gundersen, MD
Ophthalmologist-in-Chief, Emeritus

Herbert I. Harris, MD
Associate in Psychiatry, Emeritus

Eliot Hubbard, Jr., MD
Physician, Emeritus

Henry W. Hudson, MD
Consultant in Surgery, Emeritus

Charles A. Janeway, MD
Physician-in-Chief, Emeritus

Otto Krayner, MD
Consultant in Pharmacology, Emeritus

Eugene M. Landis, MD
Consultant in Physiology, Emeritus

Paul K. Losch, DDS
Dentist-in-Chief, Emeritus

Benedict Massell, MD
Chief, Rheumatic Fever Research Unit, Emeritus

Dorothea May Moore, MD
Associate in Medicine, Emeritus

Harry L. Mueller, MD
Chief, Allergy Division, Emeritus

Edward B.D. Neuhauser, MD
Radiologist-in-Chief, Emeritus

Marion W. Ropes, MD
Consultant in Medicine, Emeritus

Gertrud C. Reyersbach, MD
Associate in Medicine, Emeritus

David D. Rutstein, MD
Senior Associate in Medicine, Emeritus

Harold I. Shuman, MD
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